## CLAIMS

1. A method for transferring one or more liquid samples in one or more sample containers to one or more measurement devices, comprising the steps of:

a. opening a first valve communicating a first sample container with a first sample reservoir;

b. drawing a first liquid sample from the first sample container through the first valve into the first sample reservoir;

c. closing the first valve; and

d. pumping the first liquid sample from the first sample reservoir into the first measurement device.

2. The method of claim 1, wherein the first valve is a normally-closed, spring-loaded ball valve, and wherein said step of opening a first valve further comprises the step of:

e. applying a first opening force to the ball of the first valve.

3. The method of claim 2, wherein said step of applying a first opening force comprises the steps of:

f. bringing a first needle in contact with a first substantially immobile surface, wherein an end of the first needle is in contact with the ball of the first valve, such that the pressure of the surface against the first needle is communicated to the ball.

4. The method of claim 3, wherein the first substantially immobile surface is the bottom of the first sample container.

5. The method of claim 3, wherein the first substantially immobile surface is an upper surface of the first sample container and wherein the first needle includes a first spacer that contacts the upper surface of the first sample container.

6. The method of claim 2, wherein said step c. of closing the first valve comprises the step of

f. withdrawing the first opening force from the ball of the first valve.

7. The method of claim 6, wherein said step f. of withdrawing comprises the step of

g. removing the first needle from contact with the first substantially immobile surface.

8. The method of claim 1, further comprising the step of analyzing the first liquid sample by a liquid chromatograph column or electrophoretic column.

9. The method of claim 8, wherein the liquid chromatographic column or electrophoretic column is directly attached to the first valve with no intervening tubing.

10. The method of claim 1, wherein the step d. of pumping is performed at a pressure between about 1000 p.s.i. and 8000 p.s.i.

11. The method of claim 1, wherein the step b. of drawing a first liquid sample comprises the step of:

g. withdrawing the plunger of a syringe from the chamber of the syringe, wherein the chamber communicates with the first sample reservoir.

12. The method of claim 1, further comprising the steps of:

e. translating the first valve to communicate between a rinsing container having a rinsing sample and the first sample reservoir;

f. opening the first valve;

g. pumping a rinsing sample through the first sample reservoir and the first valve into the rinsing container; and

h. closing the first valve.

13. The method of claim 1, further comprising the steps of

e. opening a second valve communicating a second sample container with a second sample reservoir, wherein the second valve is attached to the first valve;

f. drawing a second liquid sample from the second sample container through the second valve into the second sample reservoir;

g. closing the second valve;

h. pumping the second liquid sample from the second sample reservoir into the second measurement device.

14. The method of claim 13, wherein the steps e, f, g, and h of opening a second valve, drawing a second liquid sample, closing the second valve, and pumping the second liquid sample are performed at substantially the same time as the steps a, b, c, and d of opening a

first valve, drawing a first liquid sample, closing the first valve, and pumping the first liquid sample, respectively.

15. An apparatus for transferring one or more liquid samples in one or more sample containers to one or more measurement devices, comprising:

a. a means for opening a first valve communicating a first sample container with a first sample reservoir;

b. a means for drawing a first liquid sample from the first sample container through the first valve into the first sample reservoir;

c. a means for closing the first valve;

d. a means for pumping the first liquid sample from the first sample reservoir into the first measurement device.

16. The apparatus of claim 15, wherein the first valve is a normally-closed, spring-loaded ball valve, and wherein said means for opening a first valve further comprises:

e. a means for applying a first opening force to the ball of the first valve.

17. The apparatus of claim 16, wherein said means for applying a first opening force comprises:

f. a means for bringing a first needle in contact with a first substantially immobile surface, wherein an end of the first needle is in contact with the ball of the first valve, such that the pressure of the surface against the first needle is communicated to the ball.

18. The apparatus of claim 17, wherein the first substantially immobile surface is the bottom of the first sample container.

19. The apparatus of claim 17, wherein the first substantially immobile surface is an upper surface of the first sample container and wherein the first needle includes a first spacer that contacts the upper surface of the first sample container.

20. The apparatus of claim 16, wherein said means for closing the first valve comprises:

f. a means for withdrawing the first opening force from the ball of the first valve.

21. The apparatus of claim 20, wherein said means for withdrawing comprises:

g. a means for removing the first needle from contact with the first substantially immobile surface.

22. The apparatus of claim 15, further comprising:

e. a means for analyzing the first liquid sample by a liquid chromatograph column or electrophoretic column.

23. The method of claim 22, wherein the liquid chromatographic column or electrophoretic column is directly attached to the first valve with no intervening tubing.

24. The apparatus of claim 15, wherein the means for pumping is capable of producing a pressure between about 1000 p.s.i. and 8000 p.s.i.

25. The apparatus of claim 15, wherein the means for drawing a first liquid sample comprises:

g. a means for withdrawing the plunger of a syringe from the chamber of the syringe, wherein the chamber communicates with the first sample reservoir.

26. The apparatus of claim 15, further comprising:

e. a means for translating the first valve to communicate between a rinsing container having a rinsing sample and the first sample reservoir;

f. a means for opening the first valve;

g. a means for pumping a rinsing flow through the first sample reservoir and the first valve into the rinsing container; and

h. closing the first valve.

27. The apparatus of claim 15, further comprising:

e. a means for opening a second valve communicating a second sample container with a second sample reservoir, wherein said second valve is attached to said first valve;

f. a means for drawing a second liquid sample from the second sample container through the second valve into the second sample reservoir;

g. a means for closing the second valve;

h. a means for pumping the second liquid sample from the second sample reservoir into the second measurement device.

28. The apparatus of claim 27, wherein the means for opening a second valve, drawing a second liquid sample, closing the second valve, and pumping the second liquid sample

operate at substantially the same time as the means for opening a first valve, drawing a first liquid sample, closing the first valve, and pumping the first liquid sample, respectively.

29. An assembly suitable for use in a separation-based measurement device, comprising:

a. a housing having an interior chamber connected to a sample inlet, a sample outlet, and a reservoir input/output port;

b. a valve seal located between said sample inlet and said chamber;

c. a hollow needle slideably mounted through said valve seal into said chamber; and

d. a valve ball within said chamber, connected to the end of said hollow needle;

e. whereby a mechanical pressure on the hollow needle tends to remove said valve ball from said valve seal, thereby creating a liquid flow passage through the hollow needle, past the valve ball and seal, to the interior chamber.

30. The assembly of claim 29, further comprising:

f. a chromatographic or electrophoretic column connected to said sample outlet and rigidly attached to said housing.

31. The assembly of claim 29, further comprising:

f. a sample reservoir connected to said reservoir input/output port.

32. The assembly of claim 31, further comprising:

g. a syringe connected to said sample reservoir, capable of aspirating liquid from said hollow needle through said chamber into said sample reservoir.

33. The assembly of claim 31, further comprising:

g. a pump connected to said sample reservoir, capable of pumping liquid from said sample reservoir through said chromatographic or electrophoretic column.

34. A multiple-column separation-based analyzer, comprising:

a. one of a support and a housing;

b. two or more measurement assemblies mounted on said support or housing, each measurement assembly respectively comprising:

i. an interior chamber, connected to a sample inlet, a sample outlet, and a reservoir input/output port,

ii. a valve seal located between said sample inlet and said chamber;

iii. a hollow needle slideably mounted through said valve seal into said chamber;

iv. a valve ball within said chamber, connected to the end of said hollow needle, whereby a mechanical pressure on the hollow needle tends to remove said valve ball from said valve seal, thereby creating a liquid flow passage through the hollow needle, past the valve ball and seal, to the interior chamber;

v. a sample reservoir connected to said reservoir input/output port; and

vi. a chromatographic or electrophoretic column connected to said sample outlet.

35. The analyzer of claim 34, further comprising a motor mechanically linked to said support or housing, capable of translating said support or housing and said measurement assemblies.

36. The analyzer of claim 34, wherein said measurement assemblies are arranged in a rectangular array having two or more rows and at least one column.

37. The analyzer of claim 36, wherein the rectangular array has a number of rows equal to one of 2, 3, 4, 6, 8 and 12, and a number of columns equal to one of 1, 2, 3, 4, 6, 8, and 12.

38. The analyzer of claim 36, wherein the rectangular array has a unit cell spacing equal to integral multiples of 9mm.

39. The analyzer of claim 34, wherein said two or more measurement assemblies are configured to operate at substantially the same time.

40. The analyzer of claim 34, further comprising:

c. a measurement surface capable of receiving a micro-titer plate having two or more wells containing two or more liquid samples to be measured;

d. wherein said two or more measurement assemblies are configured to simultaneously process at least two of said two or more liquid samples.

41. The analyzer of claim 40, wherein said motor is configured to move said two or more measurement assemblies first to a first set of said two or more wells in said micro-titer plate and then to a second set of said two or more wells in said micro-titer plate.